ST-H7700D

SERVICE MANUAL

AEP Model
UK Model

This set is the tuner
section in MHC-7700D/7710D.

- ST-H7700D is similar to the earlier ST-H6700 (AEP, UK model).
- Refer to ST-H6700 service manual for information not contained in this service manual.

PARTS LIST (The difference between ST-H6700 and ST-H7700D)

Page	ST-H6700				ST-H7700D		
	Ref. No.	Part No.	Description	Remarks	Part No.	Description	Remarks
23	1	4-932-844-11	CASE		4-950-163-01	CASE	
	3	X-4942-536-1	PANEL (H) ASSY, FRONT		X-4942-740-1	PANEL (N) ASSY, FRONT	
	*11	4-948-730-01	PANEL (EXP), BACK (AEP, UK)		*4-948-730-61	PANEL (EXP), BACK (AEP, UK)	
	*11	4-948-730-11	PANEL (EXP), BACK (IT)		*4-948-730-71	PANEL (EXP), BACK (IT)	
	*11	4-948-730-21	PANEL (EXP), BACK (G)		*4-948-730-51	PANEL (EXP), BACK (G)	
	12	4-950-911-11	PANEL (ST), FRONT		4-950-911-21	PANEL (ST), FRONT	
	16	4-942-636-01	EMBLEM (NO. 3.5), SONY		4-942-636-11	EMBLEM (NO. 3.5), SONY	

- G : Germany model
- IT : Italian model

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

FM STEREO/FM-AM TUNER

SONY®

MICROFILM

9-957-267-11

Sony Corporation
Audio Group

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92F0459-1
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© 1992. 6

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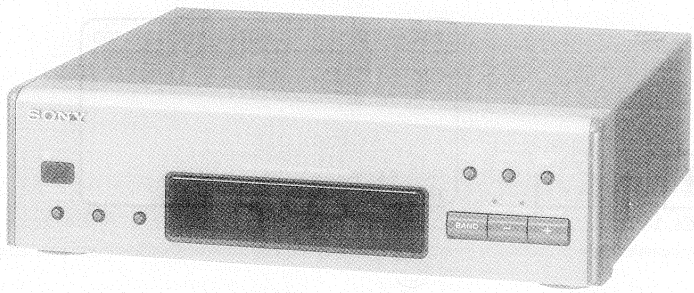
ST-H6700

SERVICE MANUAL

AEP Model
UK Model



This set is the tuner
section in MHC-4700/6700

SPECIFICATIONS

System	FM stereo, FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 — 108 MHz
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz
AM tuner section	
Tuning range	AEP, UK, Germany model: MW: 531—1,602kHz LW: 153—279kHz Italian model: MW: 522—1,611kHz LW: 144—288kHz
Antenna	AM loop antenna, External antenna terminals
Intermediate frequency	450 kHz

Design and specifications subject to change without notice.

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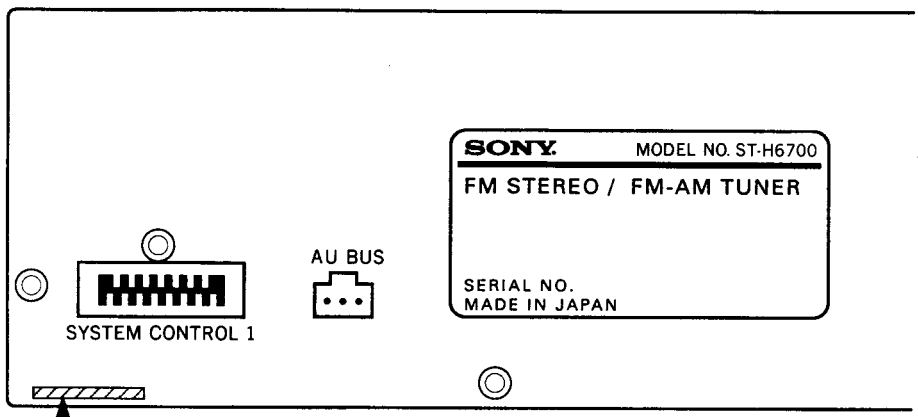
MICROFILM

FM STEREO/FM-AM TUNER

SONY

MODEL IDENTIFICATION

—BACK PANEL—



4-948-730-01 (AE) : AEP, UK model
4-948-730-11 (IT) : Italian (IT) model
4-948-730-21 (AE4): Germany (G) model

SECTION 1
SERVICING NOTES

1-1. SUPPLY OF POWER DURING SERVICES

Because the equipment is not provided with any power supply, it is operated with power supplied from the amplifier TA-H4700/H6700 used in the series. The equipment requires the following 4 types of voltages. Therefore, connect the equipment to TA-H4700/H6700 for services such as repairing with power supplied, because it will be too complicated to supply these voltages individually.

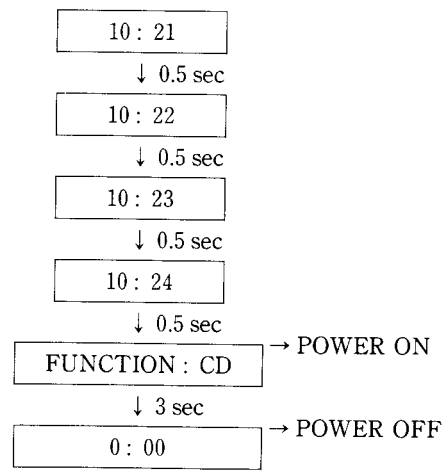
VOLTAGE	MAJOR CIRCUIT IN USE
AC 3.9V	FL tube filament voltage (VF)
DC −24V	Display controller IC701 grid voltage (VG)
DC 5.6V	Display controller IC701, Tuner PLL IC81 Vcc
DC 12V	Tuner RF, FM/AM DET IC21 Vcc

1-2. SERVICE MODE TO CHECK TIMER ON-OFF

It is possible to check whether the timer normally functions while being connected with an amplifier.

(1) Connect the equipment to the amplifier TA-H4700/H6700 and set the SYSTEM POWER switch to STANDBY state.
(2) Set the time of the tuner to any time.
(3) Press 3 switches "BAND", "−" and "MEMORY/NEXT" at the same time (while pressing "BAND" and "−" beforehand, finally press "MEMORY/NEXT")

(4) FL display tube



(5) Completion

Note : After completion of the checking above, data preset in the memory IC702 is erased while resetting the memory to the next page state upon shipping from the works, so be sure to recover the same frequency as that before the repairing.

• **Frequencies initially preset**

	AEP, UK, Germany model			Italian model		
	FM	MW	LW	FM	MW	LW
1	87.5MHz	531kHz	153kHz	87.5MHz	522kHz	144kHz
2	88.0MHz	603kHz	162kHz	88.0MHz	603kHz	162kHz
3	98.0MHz	999kHz	216kHz	98.0MHz	999kHz	216kHz
4	100.0MHz	1404kHz	270kHz	100.0MHz	1404kHz	270kHz
5	108.0MHz	1602kHz	279kHz	108.0MHz	1611kHz	288kHz
6—20	*1	*2	*2	*1	*2	*2

*1 The same frequency values are set for the preset memory No. 6—No. 10, No. 11—No. 15 and No. 16—No. 20 as for No. 1—No. 5 respectively.

*2 The same frequency values are set for the preset memory No. 6—No. 10 as for No. 1—No. 5.

1-3. SERVICE MODE TO CHECK FL TUBE AND KEY INPUT

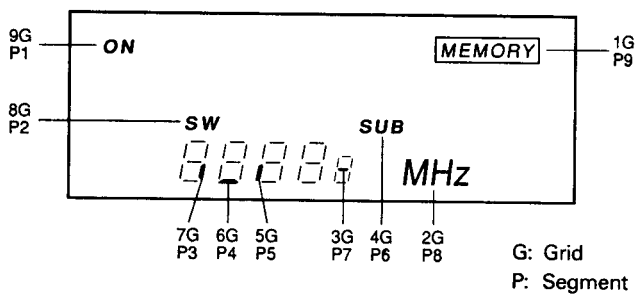
It is possible to check FL tube all ON grid, segment and key input.

(1) Connect the equipment to the amplifier TA-H4700/H6700 and remove the AC cord of the amplifier out of the AC receptacle.

(2) While pressing 3 switches "BAND", "−" and "MEMORY/NEXT" at the same time, insert the AC cord of the amplifier into the receptacle.

(3) Thus, all FL display tubes light up. By pressing "+" or "TIMER CONTROL" in this state, partial lighting or key input checking, respectively, is effected.

Partial lighting: Indicates the mode to check complete connection between the grid and segment of the FL tube. The condition is normal when the following indication is effected. By pressing "+" or "−" in the partial lighting mode, the status returns to key input checking or all ON in (3), respectively.



Key input checking: Shows the mode to check key input into 9 keys on the front panel. "0" is indicated at first, and every time a different key is pressed, indicated number is increased. After completion of pressing all 9 keys, "PASS" is indicated.
(Once a key is pressed, pressing it again is rejected.)

(4) After the completion of the checking, the equipment recovers normal operation by once removing the AC cord and inserting it again into the AC receptacle.

1-4. HOW TO FORCEFULLY TURN POWER ON

The equipment is not provided with any power switch. Therefore, power ON/OFF is controlled in the amplifier side. However, even without an amplifier, power is supplyable to the equipment according to the following methods provided any type of power is available, e.g. using a special jig or supplying the 4 types of voltages individually.
(When power is supplied from the amplifier, power is turned ON only for the tuner.)

(1) Supply power.

(2) Press 3 switches "STEREO/MONO", "−" and "MEMORY/NEXT" at the same time.
(Press "STEREO/MONO" and "−" beforehand, and finally press "MEMORY/NEXT".)

However, when the equipment is started up by the methods above, service modes TIMER ON/OFF and FL tube and key input checking are not operable.

SECTION 2
GENERAL

This section is extracted from instruction manual.

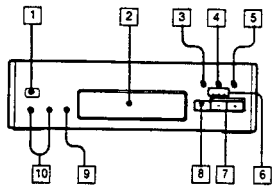
Parts Identification

A

Refer to the pages indicated in ● for use of the buttons.

Tuner Section A

1 Remote control sensor
2 Display window
3 MEMORY/NEXT button ● ● ●
4 MODE button ● ●
5 STEREO/MONO (stereo/monaural) button ●
6 TUNING/PRESET indicators
7 TUNING PRESET/TIMER –/+ buttons
8 BAND selector ●
9 REC TIMER button ●
10 WAKE UP TIMER 1, 2 / CLOCK SET buttons ●



Clock Setting

Setting the Clock

Example: Set to 9:25 in the morning.

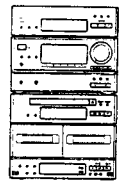
1 **Press WAKE UP TIMER 1 and 2 at the same time.**

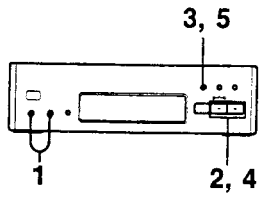
2 **Set the hour with the – or + buttons.**

3 **Press MEMORY/NEXT.**

4 **Set the minute with the – or + buttons.**

5 **Press MEMORY/NEXT.**
The clock starts operating.

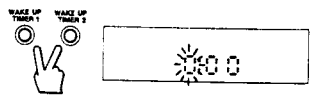




Information on the time

The European and U.K. model shows the time in 24-hour cycle.

1



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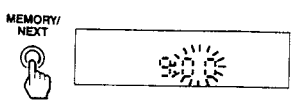
3



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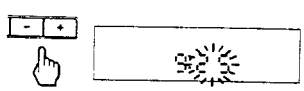


5

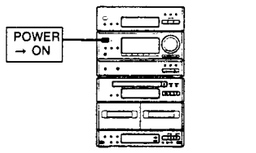
When a power interruption occurs
The clock, timer and Wake Up Volume settings are all erased, and "0:00" ("AM will flash on the display.

To change the frequency display to the time display
Press CLOCK DISP. on the remote commander. Press it again to change to the frequency display.

Radio

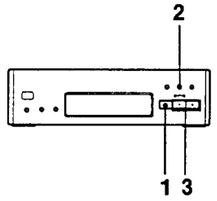
The automatic tuning allows you to receive stations whose signal is strong enough. When the signal is too weak, use the manual tuning.

Tuning in Automatically



1 Press BAND repeatedly until the desired band appears.
As you press BAND, the band changes as follows:

FM → MW → LW

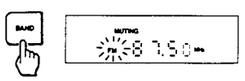


2 Press MODE so that the TUNING indicator lights up.

3 Keep – or + depressed for more than 1 second.
"AUTO" appears on the display and the unit tunes in a station automatically.

Repeat step 3 until the desired station appears.

1



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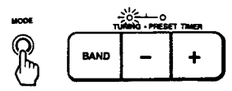


3

Radio

Tuning in Manually

1 Press BAND repeatedly until the desired band appears.

2 Press MODE so that the TUNING indicator lights up.

3 Press – or + repeatedly until the desired station appears.

Indicator on the display

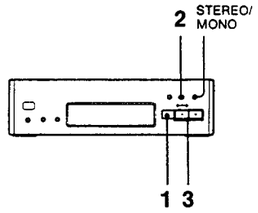
TUNED: Appears when a station with sufficient signal strength is tuned in.
STEREO: Appears when an FM stereo program with sufficient signal strength is received.

Antenna adjustment A

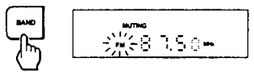
For MW and LW reception, find the best location for the supplied AM loop antenna.

When an FM program is noisy or hard to receive

Press STEREO/MONO so that "MONO" appears in the display. There will be no stereo effect, but the reception will be improved. Press the button again to restore the stereo effect.



1



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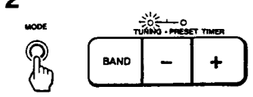
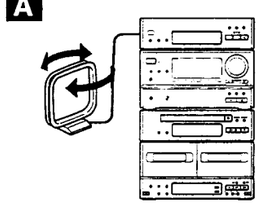


3

A



Radio

Storing Stations

You can store up to 20 FM stations, 10 MW stations and 10 LW stations in a desired sequence, so that you can tune in the stored station directly by entering the preset station number.
This operation is not possible with the remote commander.

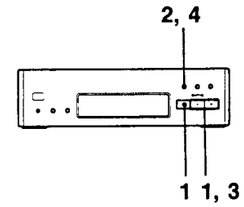
1 Tune in the desired station.

2 Press MEMORY/NEXT.
"MEMORY" and the preset station numbers appear on the display.

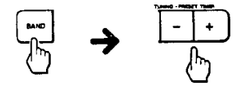
3 While "MEMORY" is on (for several seconds), press – or + to select a desired preset number.

4 Press MEMORY/NEXT.
"MEMORY" disappears, and the station is stored.

Repeat step 1 to 4 for each station to be stored.



1



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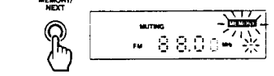

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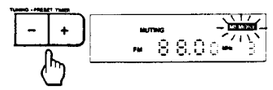

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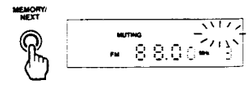


If you cannot store a station successfully
Press MEMORY/NEXT again so that "MEMORY" appears, and then proceed with steps 3 and 4 above.
Be sure to operate while "MEMORY" is on (about 4 seconds).

When you have selected the wrong preset station number
Press MEMORY/NEXT again and then proceed with the steps 3 and 4.

To change the preset station
Store a desired station at the desired preset number by proceeding with the above steps.
The station previously preset will be erased.
Erasing only is not possible.

Radio

To Tune in a Preset Station

Notes
- When you use the remote commander for the following operations make sure that the display of the remote commander shows "TUNER". If not, press TUNER on the remote commander.
- You cannot operate the buttons on the lid if the lid is open.

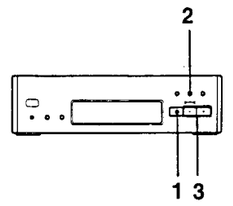
1 Press BAND to select a desired band.

2 Press MODE so that the PRESET indicator lights up.

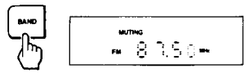
3 Press – or + to select the desired preset station number.

To tune in a preset station directly

Possible only with the remote commander.
1 Press BAND to select a desired band.
2 Press the numeric buttons to select the desired preset station number.



1



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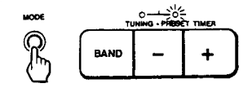

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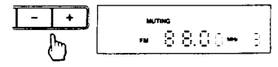


SECTION 3
ELECTRICAL ADJUSTMENTS

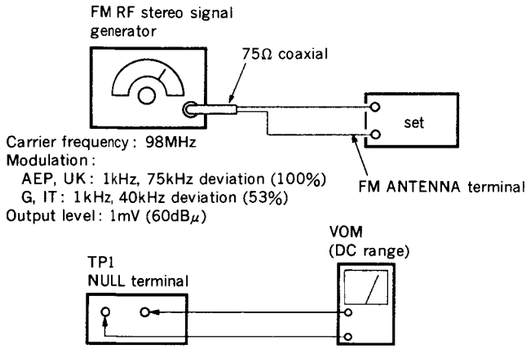
Precautions in Repairing

If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

FM SECTION

FM Discriminator Adjustment (NULL Adjustment)

Setting :



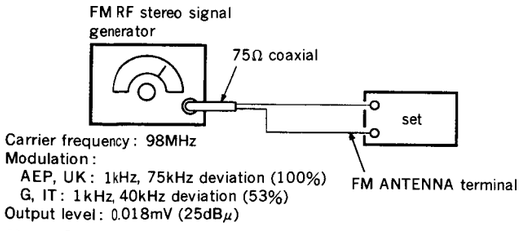
Procedure :

1. Tune the set to 98MHz.
2. Adjust T21 for 0V reading on the VOM.

Note : FM Tuning Level adjustment should be made after FM discriminator alignment.

FM Tuning Level Adjustment

Setting :


FM RF stereo signal generator
75Ω coaxial
set
Carrier frequency : 98MHz
Modulation :
AEP, UK : 1kHz, 75kHz deviation (100%)
G, IT : 1kHz, 40kHz deviation (53%)
Output level : 0.018mV (25dBμ)
FM ANTENNA terminal

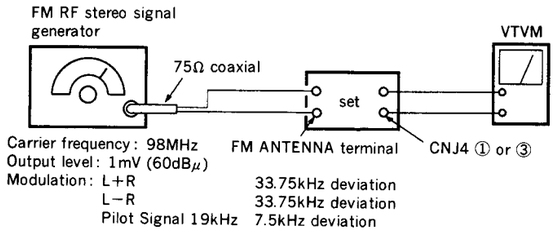
Procedure :

1. Tune the set to 98MHz.
2. Adjust T24 so that the TUNED indicator goes on.

- G : Germany model
- IT : Italian model

FM Stereo Separation Adjustment

Setting :



Procedure :

Tune the set to 98MHz.

FM stereo Signal generator Output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV21 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV21 for minimum reading.

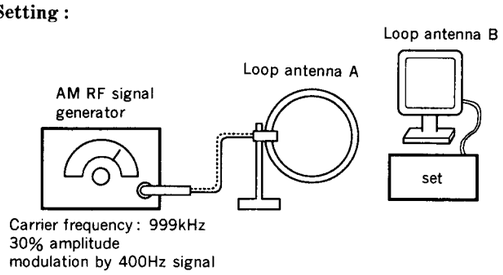
L-CH Stereo separation : Ⓐ—Ⓑ
R-CH Stereo separation : Ⓒ—Ⓓ

The separations of both channels should be equal.

AM SECTION

AM Tuning Level Adjustment

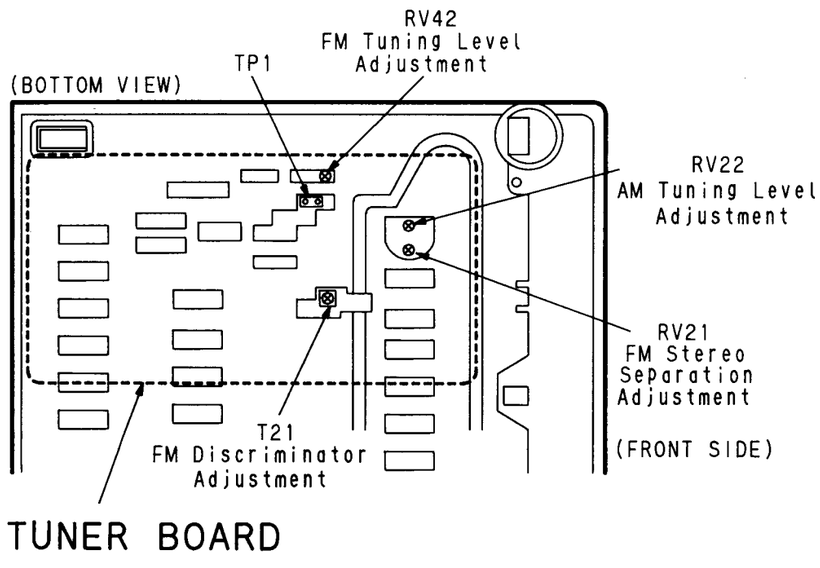
Setting :



Procedure :

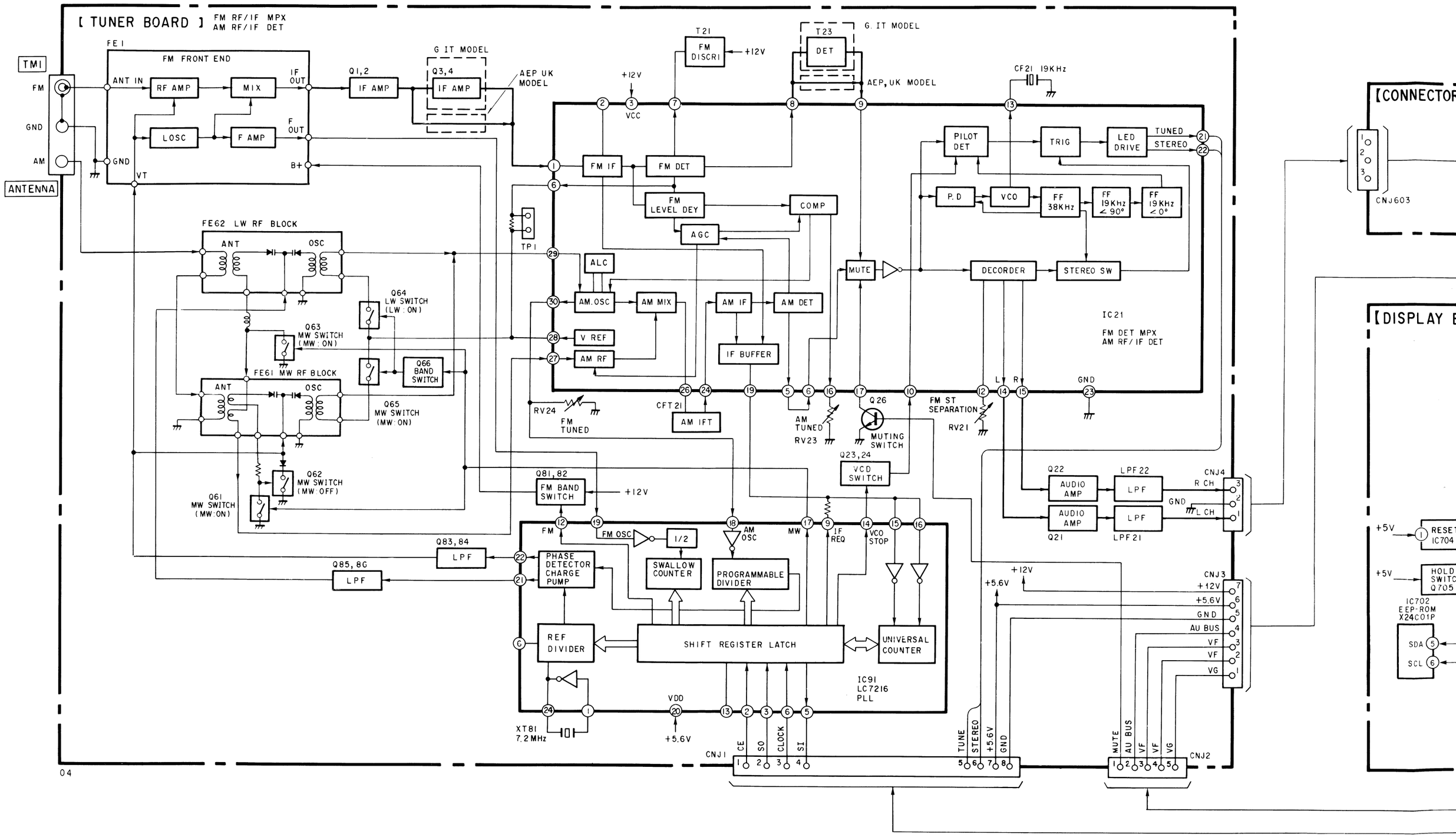
1. Set loop antenna A so that the loop antenna B input level becomes 58dBμ/m (0.8mV/m)
2. Tune the set to 999kHz.
3. Adjust the RV22 so that the TUNED indicator goes on.

Adjustment Location :

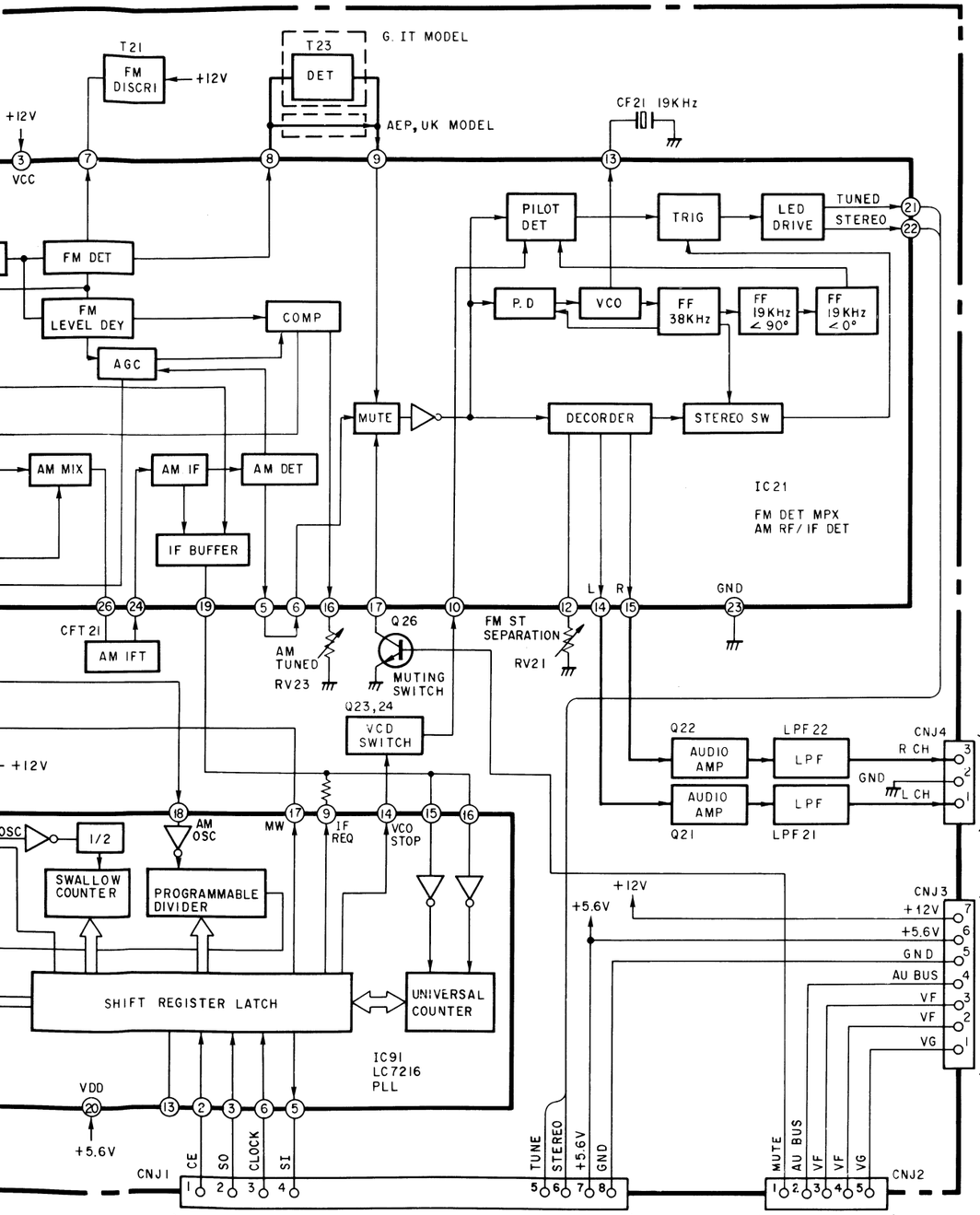


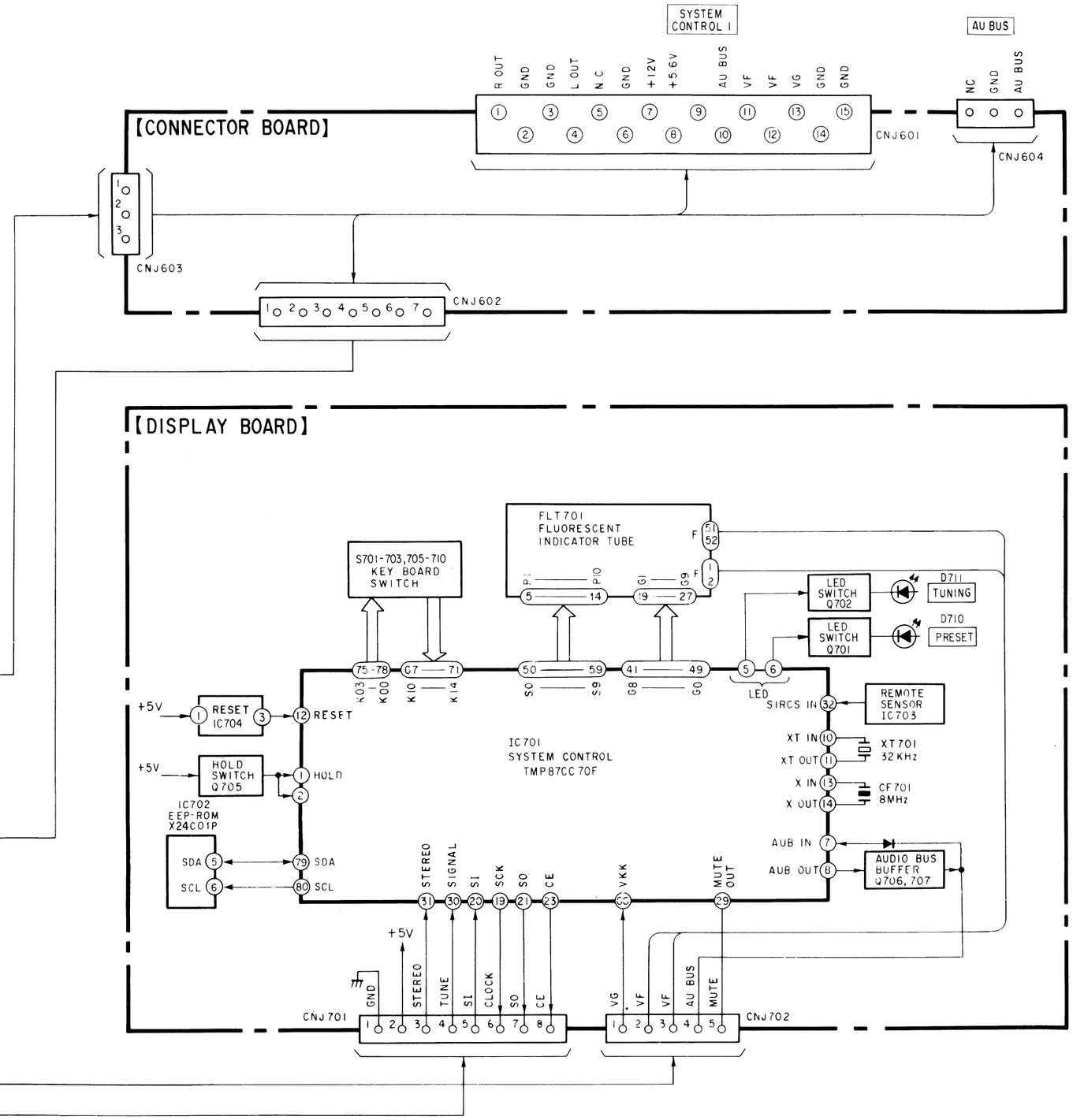
SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



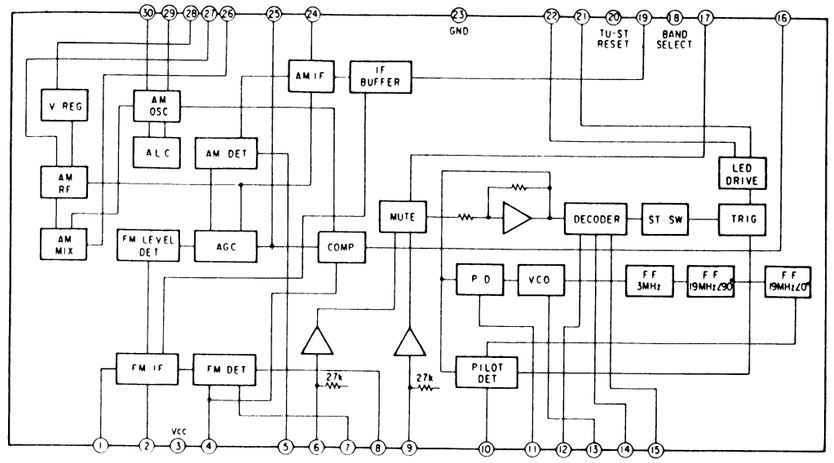
04


T21
FM DISCRI
+12V
T23
DET
G. IT MODEL
AEP, UK MODEL
CF21 19KHz
+12V
VCC
FM DET
FM LEVEL DEY
COMP
AGC
PILOT DET
TRIG
LED DRIVE
TUNED
STEREO
P. D
VCO
FF 38KHz
FF 19KHz ∠ 90°
FF 19KHz ∠ 0°
MUTE
DECORDER
STEREO SW
AM MIX
AM IF
AM DET
IF BUFFER
IC21
FM DET MPX
AM RF/IF DET
CFT21
AM IFT
AM TUNED
RV23
Q26
MUTING SWITCH
Q23,24
FM ST SEPARATION
RV21
L
R
GND
VCD SWITCH
Q22
AUDIO AMP
LPF
LPF22
R CH
GND
L CH
Q21
LPF21
CNJ4
+12V
1/2
AM OSC
MW
IF REQ
VCO STOP
SWALLOW COUNTER
PROGRAMMABLE DIVIDER
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
IC91
LC7216
PLL
VDD
+5.6V
CNJ3
+5.6V
GND
AU BUS
VF
VG
CNJ1
CE
SO
CLOCK
SI
TUNE
STEREO
MUTE
CNJ2

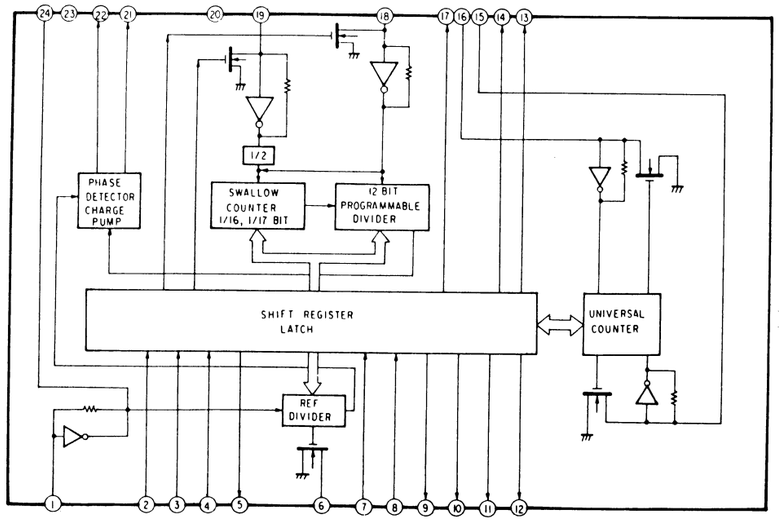

SYSTEM CONTROL I
R OUT
GND
GND
L OUT
N.C
GND
+12V
+5.6V
AU BUS
VF
VF
VG
GND
GND
AU BUS
NC
GND
AU BUS
【CONNECTOR BOARD】
CNJ601
CNJ604
CNJ603
CNJ602
【DISPLAY BOARD】
FLT701
FLUORESCENT INDICATOR TUBE
S701-703,705-710
KEY BOARD SWITCH
LED SWITCH Q702
LED SWITCH Q701
D711
TUNING
D710
PRESET
LED
+5V
RESET IC704
RESET
HOLD SWITCH Q705
HOLD
IC702
EEP-ROM
X24C01P
SDA
SCL
IC701
SYSTEM CONTROL
TMP87CC70F
SIRCS IN
REMOTE SENSOR IC703
XT IN
XT OUT
XT701
32KHz
X IN
X OUT
CF701
8MHz
AUB IN
AUB OUT
AUDIO BUS BUFFER Q706,707
STEREO
SIGNAL
SI
SCK
SO
CE
VKK
MUTE OUT
CNJ701
CNJ702
TUNE
CLOCK
VG
VF
VF
AU BUS
MUTE

• IC Block Diagrams

IC21 LA1851N



IC81 LC7218



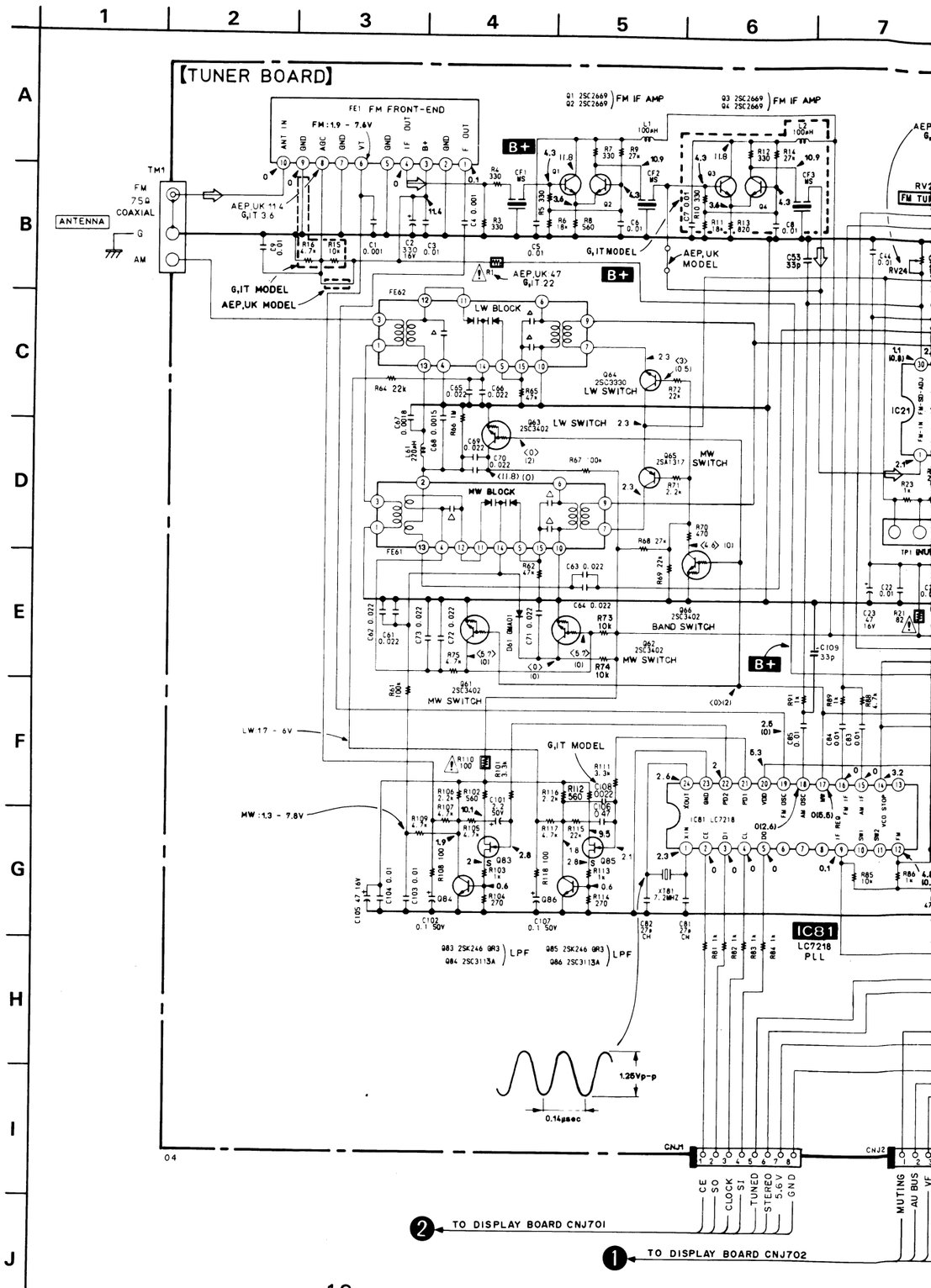
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.

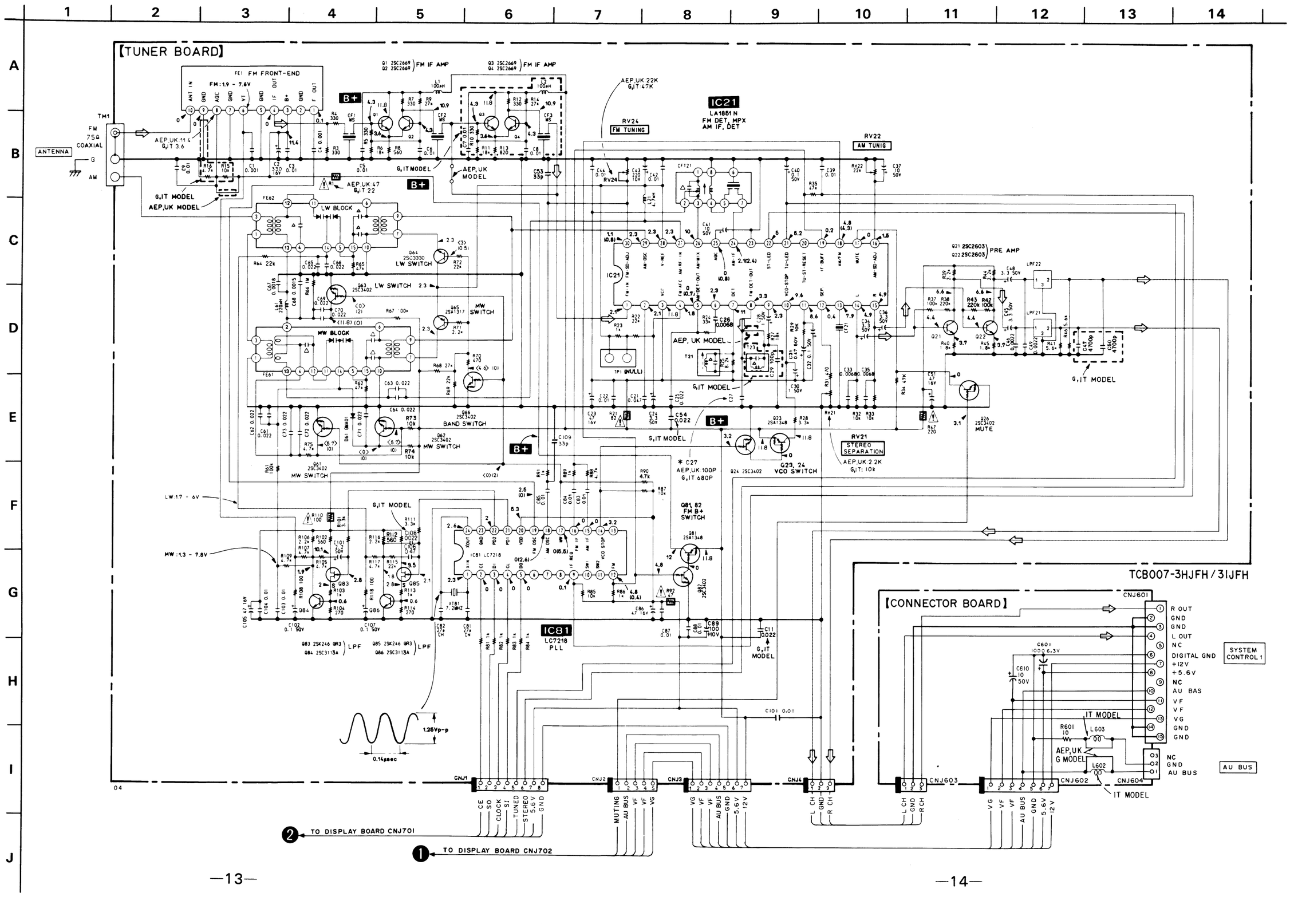
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW
  < > : LW
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- G : Germany model
- IT : Italian model

4-2. SCHEMATIC DIAGRAM —TUNER SECTION—



4-2. SCHEMATIC DIAGRAM —TUNER SECTION—



unless otherwise noted. pF: μμF
indicated except for electrolytics

and 1/4W or less unless otherwise

nent.
esistor.

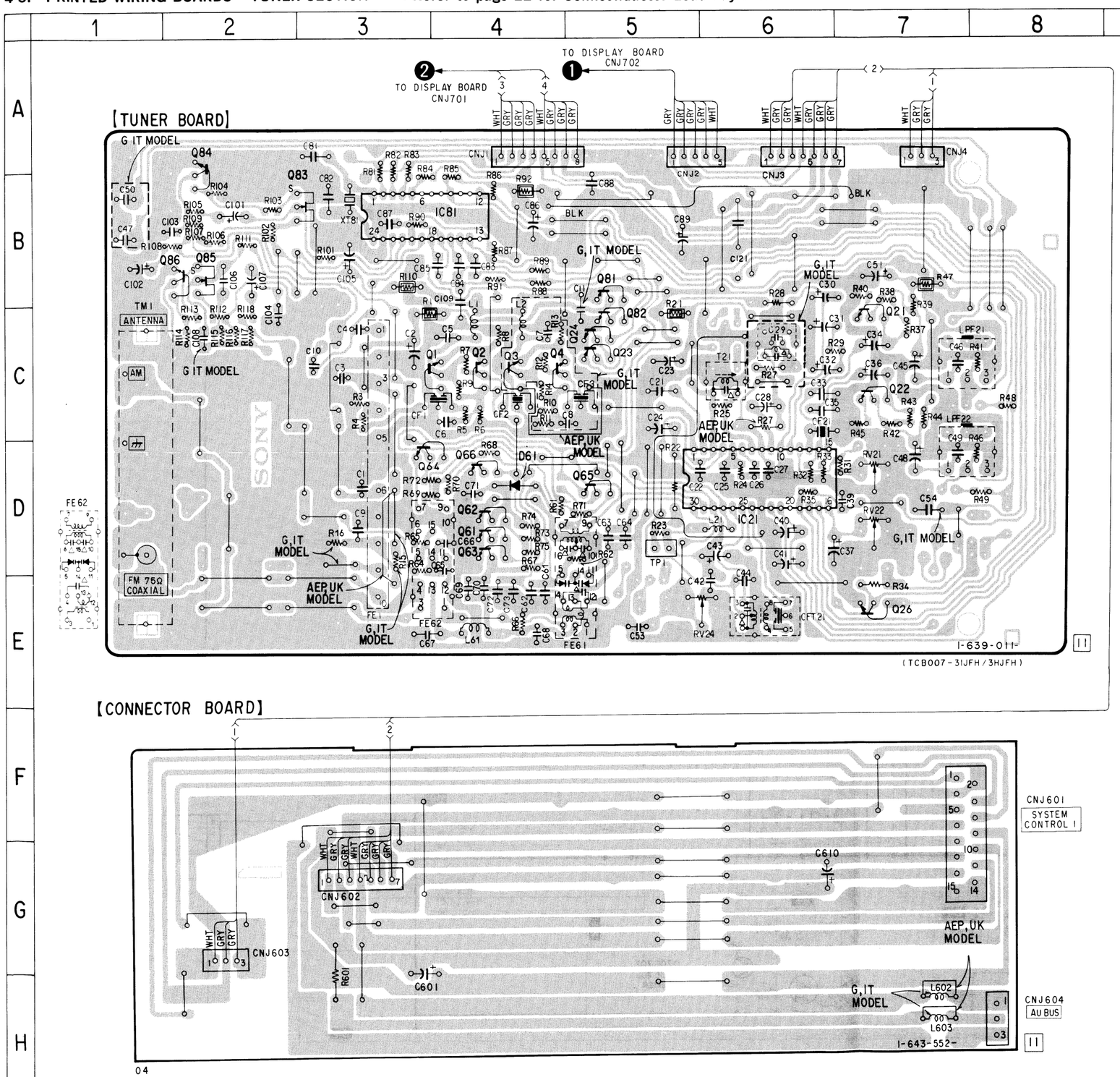
dentified by mark ⚠ or dotted
are critical for safety.
part number specified.

epair.
s are dc with respect to ground
l) conditions.

a VOM (Input Impedance 10MΩ).
be noted due to normal produc-

h a oscilloscope.
be noted due to normal produc-

4-3. PRINTED WIRING BOARDS —TUNER SECTION— • Refer to page 22 for Semiconductor Lead Layouts.



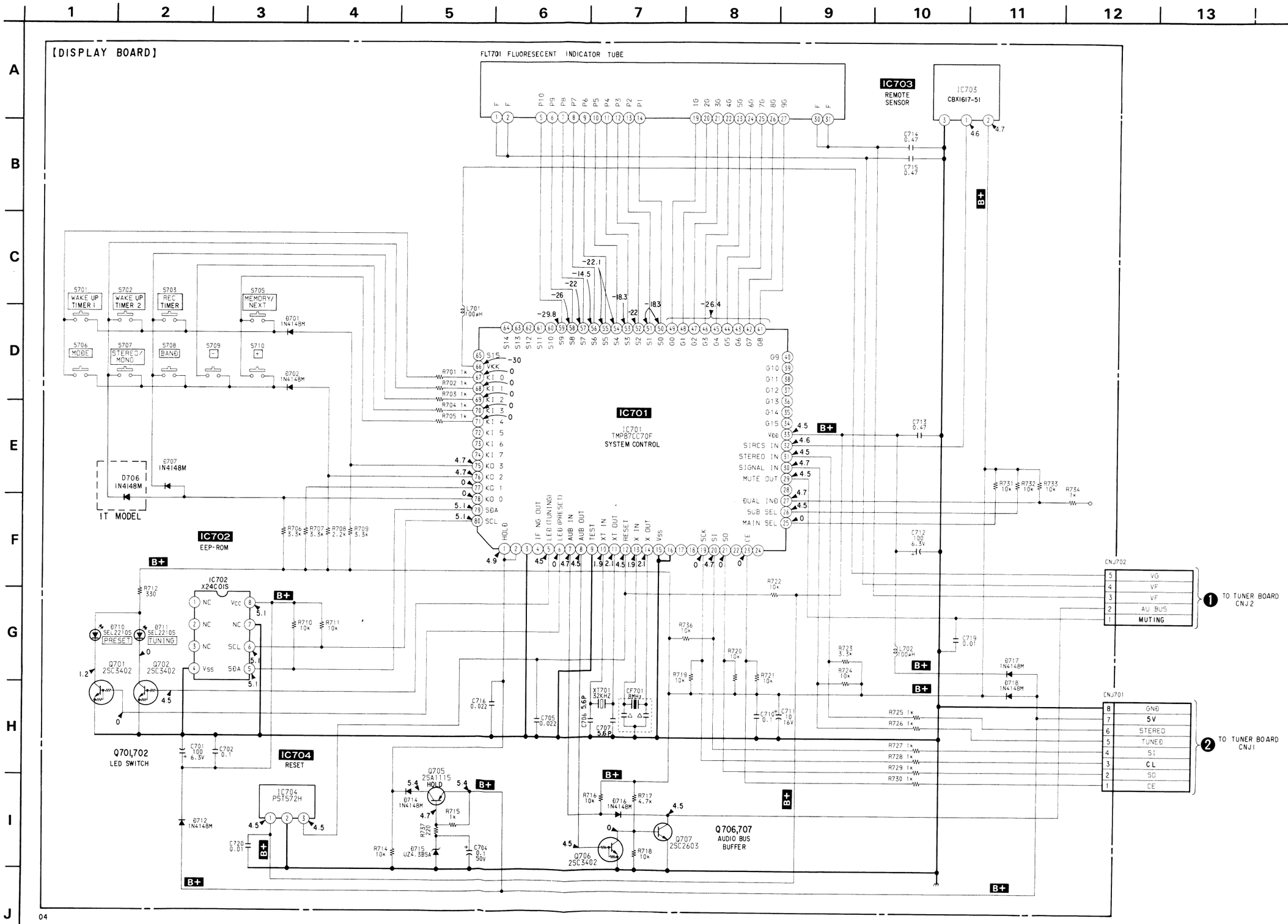
• Semiconductor Location

Ref. No.	Location
D61	D-4
IC21	D-6
IC81	B-4
Q1	C-4
Q2	C-4
Q3	C-4
Q4	C-4
Q21	C-7
Q22	C-7
Q23	C-5
Q24	C-5
Q26	E-7
Q61	D-4
Q62	D-4
Q63	D-4
Q64	D-3
Q65	D-5
Q66	D-4
Q81	B-5
Q82	C-5
Q83	B-3
Q84	A-2
Q85	B-2
Q86	B-2

Note:

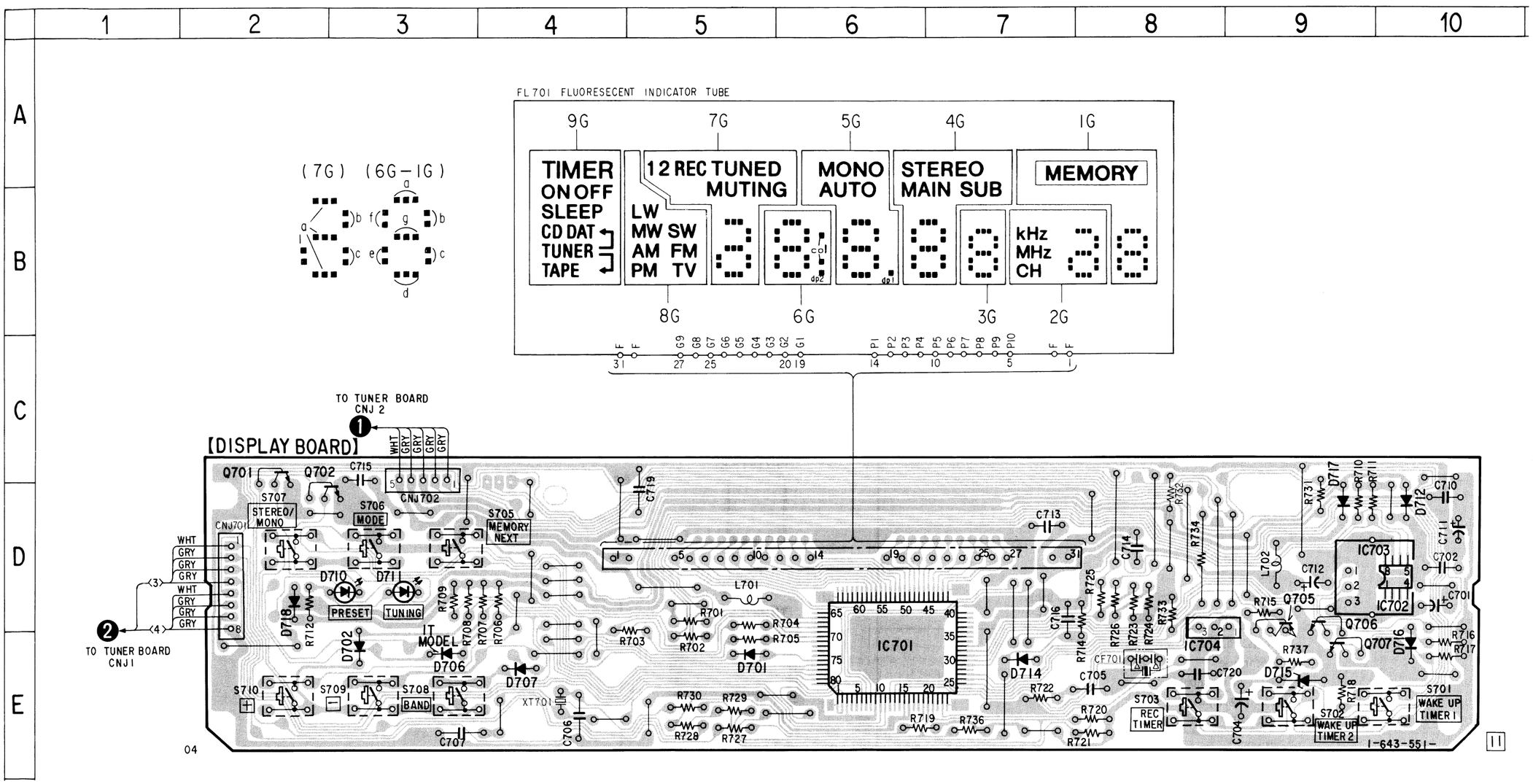
- ○—— : parts extracted from the component side.
- G : Germany model
- IT : Italian model

4-4. SCHEMATIC DIAGRAM —DISPLAY SECTION—



4-5. PRINTED WIRING BOARD —DISPLAY SECTION—

• Refer to page 22 for Semiconductor Lead Layouts.



• Semiconductor Location

Ref. No.	Location
D701	E-5
D702	E-3
D706	E-3
D707	E-4
D710	D-3
D711	D-3
D712	D-10
D714	E-7
D715	E-9
D716	E-10
D717	D-9
D718	D-2
IC701	E-6
IC702	D-10
IC703	D-9
IC704	E-8
Q701	C-2
Q702	C-2
Q705	D-9
Q706	D-9
Q707	E-9

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- IT : Italian model

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- IT : Italian model

4-6. PIN DESCRIPTION

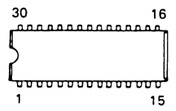
• IC701 System Controller (TMP87CC70F-6021)

The terminals work to control tuner section (IC21, 81), FL tube display and reading and writing of IC702 (preset data), etc. according to key input and signal from the remote controller.

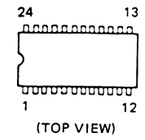
PIN No.	PIN NAME	I/O	ACTIVE	PIN FUNCTION
1	HOLD	I	↓	HOLD detecting interrupt terminal
2	HOLD RESET	I	↑	HOLD resetting interrupt terminal
3		I		Not in use
4	IF NGOUT	O	H	IF count NG output
5	LED1	O	H	TUNING LED ON
6	LED2	O	H	PRESET LED ON
7	AUB IN	I	L	AUDIO BUS input
8	AUB OUT	O	L	AUDIO BUS output
9	TEST	I	H	Test terminal
10	XT IN	I		Low frequency oscillator connection terminal (32KHz)
11	XT OUT	O		Low frequency oscillator connection terminal (32KHz)
12	RESET	I	L	Reset signal input
13	X IN	I		High frequency oscillator connection terminal (8MHz)
14	X OUT	O		High frequency oscillator connection terminal (8MHz)
15	VSS			GND
16		I		Not in use
17, 18		O		Not in use
19	SCK	O		PLL serial clock output
20	SI	I		PLL serial data input
21	SO	O		PLL serial data output
22				Not in use
23	CE	O	H	PLL chip enable
24				Not in use
25	MAIN SEL	O	L	Main sound selection terminal (Not in use)
26	SUB SEL	O	L	Sub sound selection terminal (Not in use)
27	DUAL IND	I	L	Sound dual signal detection terminal (Not in use)
28				Not in use
29	MUTE OUT	O	L	MUTING output
30	SIGNAL IN	I	L	TUNED input
31	STEREO IN	I	L	STEREO input
32	SIRCS IN	I	L	SIRCS input
33	VDD			+5V
34 - 40		O		Not in use
41 - 49	G0 - G8	O	H	FL tube digit output
50 - 59	S0 - S9	O	H	FL tube segment output
60 - 65		O	H	Not in use
66	VKK			FL tube driving power supply
67 - 71	KI0 - KI4	I	H	Key input
72		I		Not in use
73, 74				Not in use
75 - 78	KO0 - KO3	O	H	Key output
79	SDA	I/O		Data input/output for EEPROM
80	SCL	O		Clock output for EEPROM

4-7. SEMICONDUCTOR LEAD LAYOUTS

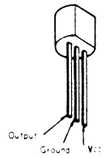
LA1851N



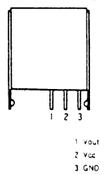
LC7218



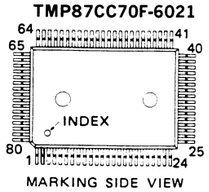
PST572H



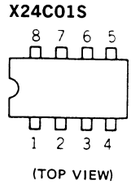
SBX1617-51



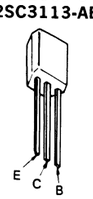
TMP87CC70F-6021



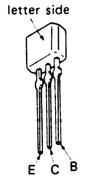
X24C01S



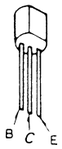
DTA114ES
DTC114ES
2S2603-EF
2SC2669-0Y
2SC3113-AB



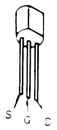
2SA1175-HFE
2SC2785-HFE



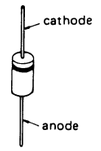
2SC3330-T



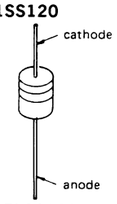
2SK246-GR3



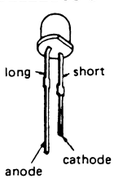
UZ-4.3BSA
1N4148M



1SS120



SEL2210S-D



TUNER

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

- G : Germany model
- IT : Italian model

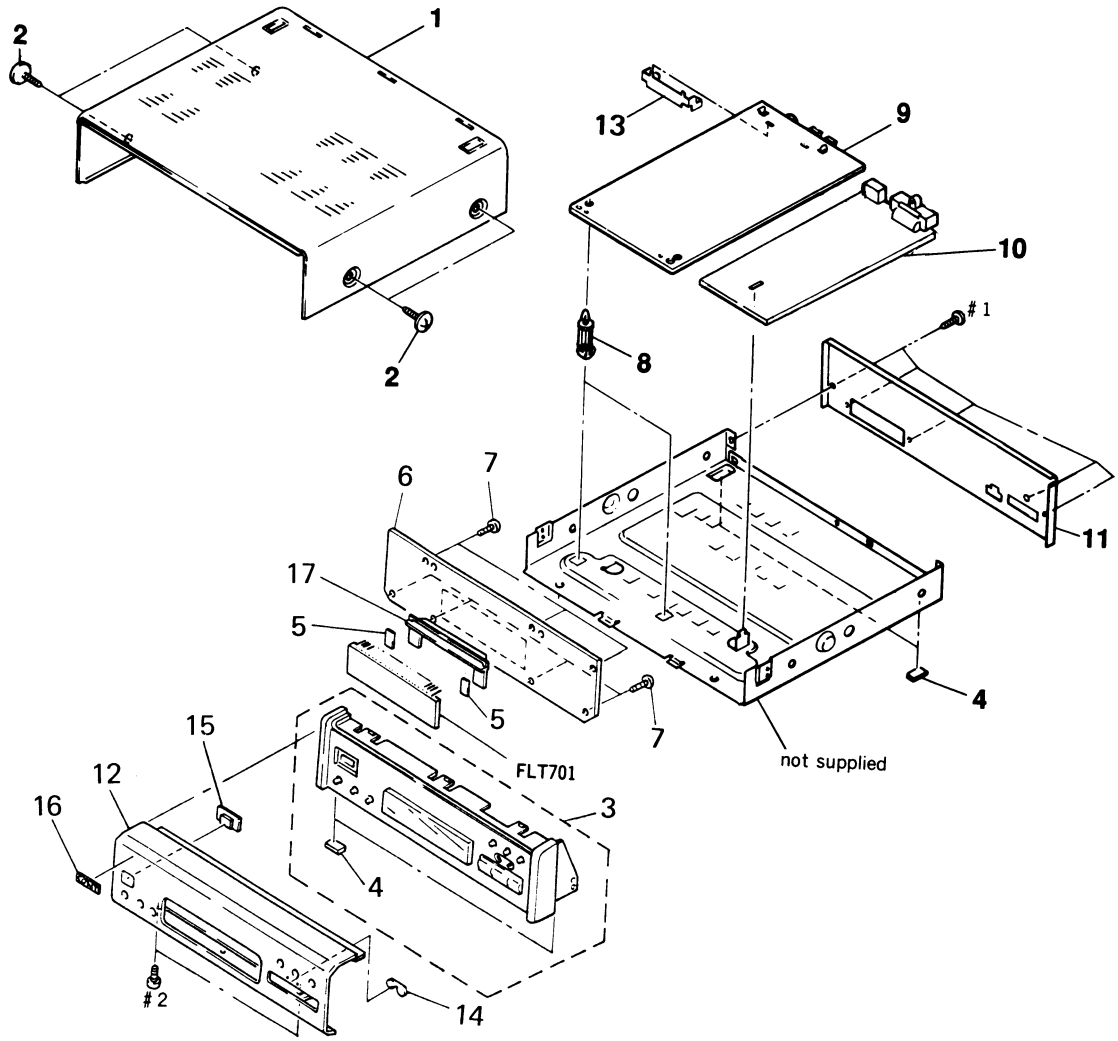
Ref.No.	Part No.	Description			Remark
	A-4303-367-A	TUNER BOARD, COMPLETE (TCB007-3HJFH)			(AEP, UK)
	A-4303-368-A	TUNER BOARD, COMPLETE (TCB007-3IJFH)			(G, IT)
		**********			
*	4-924-988-11	PLATE (ST), GROUND			
		< CAPACITOR >			
C1	1-162-294-11	CERAMIC CHIP	0.001uF	20% 25V	
C2	1-124-119-00	ELECT	330uF	20% 16V	
C3	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C4	1-162-294-31	CERAMIC CHIP	0.001uF	20% 25V	
C5	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C6	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C7	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	(G, IT)
C8	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	(G, IT)
C9	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C11	1-101-005-00	CERAMIC	0.022uF	50V	(G, IT)
C21	1-101-006-00	CERAMIC	0.047uF	50V	
C22	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C23	1-124-477-11	ELECT	47uF	20% 25V	
C24	1-123-382-00	ELECT	3.3uF	20% 100V	
C25	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C26	1-163-019-00	CERAMIC CHIP	0.0068uF	20% 12V	
C27	1-162-516-11	CERAMIC CHIP	100pF	10% 50V	(AEP, UK)
C27	1-163-007-11	CERAMIC CHIP	680pF	20% 50V	(G, IT)
C28	1-124-903-11	ELECT	1.0uF	20% 50V	
C29	1-162-516-11	CERAMIC CHIP	100pF	10% 50V	(G, IT)
C30	1-124-903-11	ELECT	1.0uF	20% 50V	
C31	1-124-902-00	ELECT	0.47uF	20% 50V	
C32	1-124-463-00	ELECT	0.1uF	20% 50V	
C33	1-130-481-00	MYLAR	0.0068uF	5% 50V	
C34	1-123-382-00	ELECT	3.3uF	20% 100V	
C35	1-130-481-00	MYLAR	0.0068uF	5% 50V	
C36	1-123-382-00	ELECT	3.3uF	20% 100V	
C37	1-124-907-11	ELECT	10uF	20% 50V	
C39	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C40	1-124-463-00	ELECT	0.1uF	20% 50V	
C41	1-124-907-11	ELECT	10uF	20% 50V	
C42	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C43	1-126-176-11	ELECT	220uF	20% 10V	
C44	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C45	1-123-382-00	ELECT	3.3uF	20% 100V	
C46	1-161-375-00	CERAMIC CHIP	0.0022uF	20% 25V	
C47	1-163-170-00	CERAMIC CHIP	0.0047uF	20% 25V	(G, IT)
C48	1-123-382-00	ELECT	3.3uF	20% 100V	
C49	1-161-375-00	CERAMIC CHIP	0.0022uF	20% 25V	
C50	1-163-170-00	CERAMIC CHIP	0.0047uF	20% 25V	(G, IT)
C51	1-124-477-11	ELECT	47uF	20% 25V	
C53	1-163-105-00	CERAMIC CHIP	33pF	5% 50V	
C54	1-101-005-00	CERAMIC	0.022uF	50V	(G, IT)
C61	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C62	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C63	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C64	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C65	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C66	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C67	1-102-120-00	CERAMIC	0.0018uF	10% 50V	
C68	1-163-111-11	CERAMIC CHIP	0.0015uF	20% 25V	
C69	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C70	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C71	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C72	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C73	1-163-063-00	CERAMIC MELF	0.022uF	25V	
C81	1-102-961-00	CERAMIC	27pF	5% 50V	
C82	1-102-961-00	CERAMIC	27pF	5% 50V	
C83	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C84	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C85	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C86	1-124-477-11	ELECT	47uF	20% 25V	
C87	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C88	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C89	1-124-443-00	ELECT	100uF	20% 10V	
C101	1-124-925-11	ELECT	2.2uF	20% 100V	
C102	1-124-463-00	ELECT	0.1uF	20% 50V	
C103	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C104	1-163-059-00	CERAMIC MELF	0.01uF	20% 16V	
C105	1-124-477-11	ELECT	47uF	20% 25V	
C106	1-136-173-00	FILM	0.47uF	5% 50V	

SECTION 5
EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware (# mark) list is given in the last of this parts list.

· G : Germany model
· IT : Italian model



Ref. No.	Part No.	Description	Remark
1	4-932-844-11	CASE	
2	3-363-099-01	SCREW (CASE +3X8 TP2)	
3	X-4942-536-1	PANEL (H) ASSY, FRONT	
4	4-930-336-21	FOOT (FELT)	
* 5	4-932-810-11	CUSHION (FL)	
* 6	A-4345-973-A	DISPLAY BOARD, COMPLETE (AEP, UK, G)	
* 6	A-4345-977-A	DISPLAY BOARD, COMPLETE (IT)	
7	4-951-620-01	SCREW (2.6X8), +BVTP	
* 8	4-914-008-01	HOLDER, PCB	
* 9	A-4303-367-A	TUNER BOARD, COMPLETE (TCB007-3HJFH) (AEP, UK)	
* 9	A-4303-368-A	TUNER BOARD, COMPLETE (TCB007-3HJFH) (G, IT)	

Ref. No.	Part No.	Description	Remark
* 10	1-643-552-11	CONNECTOR BOARD	
* 11	4-948-730-01	PANEL (EXP), BACK (AEP, UK)	
* 11	4-948-730-11	PANEL (EXP), BACK (IT)	
* 11	4-948-730-21	PANEL (EXP), BACK (G)	
12	4-950-911-11	PANEL (ST), FRONT	
* 13	4-924-988-11	PLATE (ST), GROUND	
14	4-944-427-01	INDICATOR	
15	4-944-425-01	FILTER	
16	4-942-636-01	EMBLEM (NO. 3.5), SONY	
* 17	4-944-444-01	HOLDER (FL TUBE)	
FLT701	1-519-709-11	INDICATOR TUBE, FLUORESCENT	

TUNER DISPLAY CONNECTOR

Ref. No.	Part No.	Description				Remark
R31	1-249-331-11	CARBON MELF	470	5%	1/8W	
R32	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R33	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R34	1-249-437-11	CARBON (SMALL)	47K	5%	1/4W	
R35	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R37	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R38	1-249-363-11	CARBON MELF	220K	5%	1/8W	
R39	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R40	1-249-338-11	CARBON MELF	1.8K	5%	1/8W	
R41	1-249-344-11	CARBON MELF	5.6K	5%	1/8W	
R42	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R43	1-249-363-11	CARBON MELF	220K	5%	1/8W	
R44	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R45	1-249-338-11	CARBON MELF	1.8K	5%	1/8W	
R46	1-249-344-11	CARBON MELF	5.6K	5%	1/8W	
⚠R47	1-249-409-11	CARBON (SMALL)	220	5%	1/4W	F
R48	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R49	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R61	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R62	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R64	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R65	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R66	1-215-493-00	CARBON MELF	1M	5%	1/5W	
R67	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R68	1-249-352-11	CARBON MELF	27K	5%	1/8W	
R69	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R70	1-249-331-11	CARBON MELF	470	5%	1/8W	
R71	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R72	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R73	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R74	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R75	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R81	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R82	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R83	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R84	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R85	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R86	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R87	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R88	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R89	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R90	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R91	1-249-335-11	CARBON MELF	1K	5%	1/8W	
⚠R92	1-249-401-11	CARBON (SMALL)	47	5%	1/4W	F
R101	1-249-341-11	CARBON MELF	3.3K	5%	1/8W	
R102	1-249-332-11	CARBON MELF	560	5%	1/8W	
R103	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R104	1-249-328-11	CARBON MELF	270	5%	1/8W	
R105	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R106	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R107	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R108	1-249-323-11	CARBON MELF	100	5%	1/8W	
R109	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
⚠R110	1-249-405-11	CARBON (SMALL)	100	5%	1/4W	F
R111	1-249-341-11	CARBON MELF	3.3K	5%	1/8W	
R112	1-249-332-11	CARBON MELF	560	5%	1/8W	
R113	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R114	1-249-328-11	CARBON MELF	270	5%	1/8W	
R115	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R116	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R117	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R118	1-249-323-11	CARBON MELF	100	5%	1/8W	
		< VARIABLE RESISTOR >				
RV21	1-238-598-11	RES, ADJ, CARBON 2.2K (AEP, UK)				
RV21	1-238-600-11	RES, ADJ, CARBON 10K (G, IT)				
RV22	1-238-601-11	RES, ADJ, CARBON 22K				
RV24	1-238-601-11	RES, ADJ, CARBON 22K (AEP, UK)				
RV24	1-238-602-11	RES, ADJ, CARBON 47K (G, IT)				
		< TRANSFORMER >				
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR				
T23	1-236-465-11	ENCAPSULATED COMPONENT (G, IT)				
		< TERMINAL >				
* TM1	1-537-138-31	TERMINAL BOARD (ANTENNA)				
		< CONNECTOR PIN >				
* TP1	1-560-060-00	PIN, CONNECTOR 2P				
		< CRYSTAL VIBRATOR >				
XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)				
**********						
*	A-4345-973-A	DISPLAY BOARD COMPLETE (AEP, UK, G)				
*	A-4345-977-A	DISPLAY BOARD COMPLETE (IT)				
		**********				
*	1-643-552-11	CONNECTOR BOARD				
		**********				
*	4-932-810-11	CUSHION (FL)				
*	4-944-444-01	HOLDER (FL TUBE)				
		< CAPACITOR >				
C601	1-124-471-00	ELECT	1000uF	20%	6.3V	
C610	1-124-907-11	ELECT	10uF	20%	50V	
C701	1-126-177-11	ELECT	100uF	20%	10V	
C702	1-164-159-11	CERAMIC	0.1uF		50V	
C704	1-124-463-00	ELECT	0.1uF	20%	50V	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
C107	1-124-463-00	ELECT	0.1uF	20%	50V
C108	1-163-063-00	CERAMIC MELF	0.022uF		25V (G, IT)
C109	1-162-211-31	CERAMIC	33pF	5%	50V
C121	1-161-379-00	CERAMIC	0.01uF	30%	16V (G, IT)
		< FILTER >			
CF1	1-567-389-11	FILTER, CERAMIC			
CF2	1-567-389-11	FILTER, CERAMIC			
CF3	1-567-389-11	FILTER, CERAMIC (G, IT)			
		< OSCILLATOR >			
CF21	1-577-075-11	OSCILLATOR, CERAMIC (19KHz)			
		< IF TRANSFORMER >			
CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)			
		< CONECTOR >			
* CNJ1	1-564-342-11	SOCKET, CONNECTOR 8P			
* CNJ2	1-564-339-00	PIN, CONNECTOR 5P			
* CNJ3	1-564-341-11	PIN, CONNECTOR 7P			
* CNJ4	1-564-337-00	PIN, CONNECTOR 3P			
		< DIODE >			
D61	8-719-912-20	DIODE 1SS120			
		< FM FRONT END >			
FE1	1-463-857-11	FRONT END, FM (G, IT)			
FE1	1-463-862-21	FRONT END, FM (AEP, UK)			
		< ENCAPSULATED COMPONENT >			
FE61	1-236-462-11	ENCAPSULATED COMPONENT (MW RF)			
FE62	1-236-463-11	ENCAPSULATED COMPONENT (LW RF)			
		< IC >			
IC21	8-759-821-45	IC LA1851N			
IC81	8-759-820-91	IC LC7218			
		< INDUCTOR >			
L1	1-410-645-31	MICRO INDUCTOR 100uH			
L2	1-410-645-31	MICRO INDUCTOR 100uH (G, IT)			
L21	1-407-500-00	MICRO INDUCTOR 4.7mH			
L61	1-410-525-11	MICRO INDUCTOR 220uH			
		< LOW PASS FILTER >			
LPF21	1-235-164-00	FILTER, LOW PASS			
LPF22	1-235-164-00	FILTER, LOW PASS			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q1	8-729-230-99	TRANSISTOR	2SC2669-0Y		
Q2	8-729-230-99	TRANSISTOR	2SC2669-0Y		
Q3	8-729-230-99	TRANSISTOR	2SC2669-0Y		(G, IT)
Q4	8-729-230-99	TRANSISTOR	2SC2669-0Y		(G, IT)
Q21	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q22	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q23	8-729-900-61	TRANSISTOR	DTA114ES		
Q24	8-729-900-80	TRANSISTOR	DTC114ES		
Q26	8-729-900-80	TRANSISTOR	DTC114ES		
Q61	8-729-900-80	TRANSISTOR	DTC114ES		
Q62	8-729-900-80	TRANSISTOR	DTC114ES		
Q63	8-729-900-80	TRANSISTOR	DTC114ES		
Q64	8-729-820-24	TRANSISTOR	2SC3330-T		
Q65	8-729-119-76	TRANSISTOR	2SA1175-HFE		
Q66	8-729-900-80	TRANSISTOR	DTC114ES		
Q81	8-729-900-61	TRANSISTOR	DTA114ES		
Q82	8-729-900-80	TRANSISTOR	DTC114ES		
Q83	8-729-202-67	TRANSISTOR	2SK246-GR3		
Q84	8-729-230-93	TRANSISTOR	2SC3113-AB		
Q85	8-729-202-67	TRANSISTOR	2SK246-GR3		
Q86	8-729-230-93	TRANSISTOR	2SC3113-AB		
		< RESISTOR >			
⚠R1	1-249-397-11	CARBON (SMALL)	22	5%	1/4W F (G, IT)
⚠R1	1-249-401-11	CARBON (SMALL)	47	5%	1/4W F (AEP, UK)
R3	1-249-329-11	CARBON MELF	330	5%	1/8W
R4	1-249-329-11	CARBON MELF	330	5%	1/8W
R5	1-249-329-11	CARBON MELF	330	5%	1/8W
R6	1-249-350-11	CARBON MELF	18K	5%	1/8W
R7	1-249-329-11	CARBON MELF	330	5%	1/8W
R8	1-249-332-11	CARBON MELF	560	5%	1/8W
R9	1-249-352-11	CARBON MELF	27K	5%	1/8W
R10	1-249-329-11	CARBON MELF	330	5%	1/8W (G, IT)
R11	1-249-350-11	CARBON MELF	18K	5%	1/8W (G, IT)
R12	1-249-329-11	CARBON MELF	330	5%	1/8W (G, IT)
R13	1-249-334-11	CARBON MELF	820	5%	1/8W (G, IT)
R14	1-249-352-11	CARBON MELF	27K	5%	1/8W (G, IT)
R15	1-249-374-11	CARBON MELF	10K	5%	1/8W (G, IT)
R16	1-249-343-11	CARBON MELF	4.7K	5%	1/8W (G, IT)
⚠R21	1-249-404-00	CARBON (SMALL)	82	5%	1/4W F
R22	1-249-433-11	CARBON (SMALL)	22K	5%	1/4W
R23	1-249-335-11	CARBON MELF	1K	5%	1/8W
R24	1-249-353-11	CARBON MELF	33K	5%	1/8W
R25	1-249-346-11	CARBON MELF	8.2K	5%	1/8W
R27	1-249-432-11	CARBON (SMALL)	18K	5%	1/4W
R28	1-249-423-11	CARBON (SMALL)	3.3K	5%	1/4W
R29	1-249-347-11	CARBON MELF	10K	5%	1/8W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

TUNER | DISPLAY | CONNECTOR

Ref. No.	Part No.	Description				Remark
R31	1-249-331-11	CARBON MELF	470	5%	1/8W	
R32	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R33	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R34	1-249-437-11	CARBON (SMALL)	47K	5%	1/4W	
R35	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R37	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R38	1-249-363-11	CARBON MELF	220K	5%	1/8W	
R39	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R40	1-249-338-11	CARBON MELF	1.8K	5%	1/8W	
R41	1-249-344-11	CARBON MELF	5.6K	5%	1/8W	
R42	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R43	1-249-363-11	CARBON MELF	220K	5%	1/8W	
R44	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R45	1-249-338-11	CARBON MELF	1.8K	5%	1/8W	
R46	1-249-344-11	CARBON MELF	5.6K	5%	1/8W	
⚠R47	1-249-409-11	CARBON (SMALL)	220	5%	1/4W	F
R48	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R49	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R61	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R62	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R64	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R65	1-249-355-11	CARBON MELF	47K	5%	1/8W	
R66	1-215-493-00	CARBON MELF	1M	5%	1/5W	
R67	1-249-359-11	CARBON MELF	100K	5%	1/8W	
R68	1-249-352-11	CARBON MELF	27K	5%	1/8W	
R69	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R70	1-249-331-11	CARBON MELF	470	5%	1/8W	
R71	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R72	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R73	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R74	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R75	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R81	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R82	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R83	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R84	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R85	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R86	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R87	1-249-347-11	CARBON MELF	10K	5%	1/8W	
R88	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R89	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R90	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R91	1-249-335-11	CARBON MELF	1K	5%	1/8W	
⚠R92	1-249-401-11	CARBON (SMALL)	47	5%	1/4W	F
R101	1-249-341-11	CARBON MELF	3.3K	5%	1/8W	
R102	1-249-332-11	CARBON MELF	560	5%	1/8W	
R103	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R104	1-249-328-11	CARBON MELF	270	5%	1/8W	
R105	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	

Ref. No.	Part No.	Description				Remark
R106	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R107	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R108	1-249-323-11	CARBON MELF	100	5%	1/8W	
R109	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
⚠R110	1-249-405-11	CARBON (SMALL)	100	5%	1/4W	F
R111	1-249-341-11	CARBON MELF	3.3K	5%	1/8W	
R112	1-249-332-11	CARBON MELF	560	5%	1/8W	
R113	1-249-335-11	CARBON MELF	1K	5%	1/8W	
R114	1-249-328-11	CARBON MELF	270	5%	1/8W	
R115	1-249-351-11	CARBON MELF	22K	5%	1/8W	
R116	1-249-339-11	CARBON MELF	2.2K	5%	1/8W	
R117	1-249-343-11	CARBON MELF	4.7K	5%	1/8W	
R118	1-249-323-11	CARBON MELF	100	5%	1/8W	

< VARIABLE RESISTOR >

RV21	1-238-598-11	RES, ADJ, CARBON	2.2K	(AEP, UK)	
RV21	1-238-600-11	RES, ADJ, CARBON	10K	(G, IT)	
RV22	1-238-601-11	RES, ADJ, CARBON	22K		
RV24	1-238-601-11	RES, ADJ, CARBON	22K	(AEP, UK)	
RV24	1-238-602-11	RES, ADJ, CARBON	47K	(G, IT)	

< TRANSFORMER >

T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
T23	1-236-465-11	ENCAPSULATED COMPONENT (G, IT)

< TERMINAL >

* TM1	1-537-138-31	TERMINAL BOARD (ANTENNA)

< CONNECTOR PIN >

* TP1	1-560-060-00	PIN, CONNECTOR 2P

< CRYSTAL VIBRATOR >

XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)

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*	A-4345-973-A	DISPLAY BOARD COMPLETE (AEP, UK, G)
*	A-4345-977-A	DISPLAY BOARD COMPLETE (IT)

****

*	1-643-552-11	CONNECTOR BOARD

****

*	4-932-810-11	CUSHION (FL)
*	4-944-444-01	HOLDER (FL TUBE)

< CAPACITOR >

C601	1-124-471-00	ELECT	1000uF	20% 6.3V
C610	1-124-907-11	ELECT	10uF	20% 50V
C701	1-126-177-11	ELECT	100uF	20% 10V
C702	1-164-159-11	CERAMIC	0.1uF	50V
C704	1-124-463-00	ELECT	0.1uF	20% 50V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

DISPLAY CONNECTOR

Ref. No.	Part No.	Description			Remark
C705	1-161-494-00	CERAMIC	0.022uF		25V
C706	1-162-196-31	CERAMIC	5.6PF	10%	50V
C707	1-162-196-31	CERAMIC	5.6PF	10%	50V
C710	1-164-159-11	CERAMIC	0.1uF		50V
C711	1-126-157-11	ELECT	10uF	20%	16V
C712	1-126-177-11	ELECT	100uF	20%	10V
C713	1-136-173-00	FILM	0.47uF	5%	50V
C714	1-136-173-00	FILM	0.47uF	5%	50V
C715	1-136-173-00	FILM	0.47uF	5%	50V
C716	1-161-494-00	CERAMIC	0.022uF		25V
C719	1-162-306-11	CERAMIC	0.01uF	20%	16V
C720	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< VIBRATOR, CERAMIC >			
CF701	1-579-125-11	VIBRATOR, CERAMIC (8MHz)			
		< CONNECTOR >			
* CNJ601	1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 1)			
* CNJ602	1-564-341-11	PIN, CONNECTOR 7P			
* CNJ603	1-564-337-00	PIN, CONNECTOR 3P			
* CNJ604	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)			
* CNJ701	1-564-342-11	PIN, CONNECTOR 8P			
* CNJ702	1-564-339-00	PIN, CONNECTOR 5P			
		< DIODE >			
D701	8-719-987-63	DIODE	1N4148M		
D702	8-719-987-63	DIODE	1N4148M		
D706	8-719-987-63	DIODE	1N4148M (IT)		
D707	8-719-987-63	DIODE	1N4148M		
D710	8-719-301-39	LED	SEL2210S (PRESET)		
D711	8-719-301-39	LED	SEL2210S (TUNING)		
D712	8-719-987-63	DIODE	1N4148M		
D714	8-719-987-63	DIODE	1N4148M		
D715	8-719-010-28	DIODE	UZ-4.3BSA		
D716	8-719-987-63	DIODE	1N4148M		
D717	8-719-987-63	DIODE	1N4148M		
D718	8-719-987-63	DIODE	1N4148M		
		< FLUORESCENT INDICATOR >			
FLT701	1-519-709-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC701	8-759-059-85	IC	TMP87CC70F-6021		
IC702	8-759-504-12	IC	X24C01S		
IC703	8-741-100-61	IC	SBX1617-51		
IC704	8-759-515-58	IC	PST572H		

Ref. No.	Part No.	Description			Remark
		< COIL >			
L602	1-424-090-11	COIL, LINE FILTER (G, IT)			
L603	1-424-090-11	COIL, LINE FILTER (G, IT)			
L701	1-410-521-11	INDUCTOR	100uH		
L702	1-410-521-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q701	8-729-900-80	TRANSISTOR	DTC114ES		
Q702	8-729-900-80	TRANSISTOR	DTC114ES		
Q705	8-729-119-76	TRANSISTOR	2SA1175-HFE		
Q706	8-729-900-80	TRANSISTOR	DTC114ES		
Q707	8-729-620-05	TRANSISTOR	2SC2603-EF		
		< RESISTOR >			
R601	1-249-393-11	CARBON	10	5%	1/4W
R701	1-249-417-11	CARBON	1K	5%	1/4W
R702	1-249-417-11	CARBON	1K	5%	1/4W
R703	1-249-417-11	CARBON	1K	5%	1/4W
R704	1-249-417-11	CARBON	1K	5%	1/4W
R705	1-249-417-11	CARBON	1K	5%	1/4W
R706	1-249-423-11	CARBON	3.3K	5%	1/4W
R707	1-249-423-11	CARBON	3.3K	5%	1/4W
R708	1-249-421-11	CARBON	2.2K	5%	1/4W
R709	1-249-423-11	CARBON	3.3K	5%	1/4W
R710	1-249-429-11	CARBON	10K	5%	1/4W
R711	1-249-429-11	CARBON	10K	5%	1/4W
R712	1-249-411-11	CARBON	330	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-249-417-11	CARBON	1K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-249-425-11	CARBON	4.7K	5%	1/4W
R718	1-249-429-11	CARBON	10K	5%	1/4W
R719	1-249-429-11	CARBON	10K	5%	1/4W
R720	1-249-429-11	CARBON	10K	5%	1/4W
R721	1-249-429-11	CARBON	10K	5%	1/4W
R722	1-249-429-11	CARBON	10K	5%	1/4W
R723	1-249-423-11	CARBON	3.3K	5%	1/4W
R724	1-249-429-11	CARBON	10K	5%	1/4W
R725	1-249-417-11	CARBON	1K	5%	1/4W
R726	1-249-417-11	CARBON	1K	5%	1/4W
R727	1-249-417-11	CARBON	1K	5%	1/4W
R728	1-249-417-11	CARBON	1K	5%	1/4W
R729	1-249-417-11	CARBON	1K	5%	1/4W
R730	1-249-417-11	CARBON	1K	5%	1/4W
R731	1-249-429-11	CARBON	10K	5%	1/4W
R732	1-249-429-11	CARBON	10K	5%	1/4W
R733	1-249-429-11	CARBON	10K	5%	1/4W
R734	1-249-417-11	CARBON	1K	5%	1/4W
R736	1-249-429-11	CARBON	10K	5%	1/4W

DISPLAY | CONNECTOR

Ref.No.	Part No.	Description	Remark
R737	1-249-409-11	CARBON 220 5% 1/4W	
		< SWITCH >	
S701	1-554-303-21	SWITCH, TACTILE (WAKE UP TIMER 1)	
S702	1-554-303-21	SWITCH, TACTILE (WAKE UP TIMER 2)	
S703	1-554-303-21	SWITCH, TACTILE (REC TIMER)	
S705	1-554-303-21	SWITCH, TACTILE (MEMORY/NEXT)	
S706	1-554-303-21	SWITCH, TACTILE (MODE)	
S707	1-554-303-21	SWITCH, TACTILE (STEREO/MONO)	
S708	1-554-303-21	SWITCH, TACTILE (BAND)	
S709	1-554-303-21	SWITCH, TACTILE (-)	
S710	1-554-303-21	SWITCH, TACTILE (+)	
		< VIBRATOR >	
XT701	1-527-997-21	VIBRATOR, CRYSTAL (32KHz)	

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HARDWARE LIST
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#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
#2	7-682-547-09	SCREW +BVTT 3X6 (S)

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